

Atty. Docket No.: 30287-111
Express Mail Label No.: EV292299734US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
John SANTHOFF et al.
Serial No.: To be assigned
Filed: September 15, 2003
For: ULTRA-WIDEBAND
COMMUNICATIONS PROTOCOL

San Diego, California
September 15, 2003

MAIL STOP PATENT APPLICATION
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir or Madam:

In accordance with 37 C.F.R. § 1.56, Applicants make the below-listed documents of record in the above-identified application. In accordance with 37 C.F.R. § 1.97, this statement is not to be construed as a representation that a search has been made, and is not a representation that the information cited is effective as prior art to the application or is material to patentability.

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this correspondence and anything being referred to as enclosed herein is being deposited with the United States Postal Service via Express Mail Post Office to Addressee, Label No. EV292299734US, with sufficient postage in an envelope addressed to MAIL STOP PATENT APPLICATION, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 2313-1450, on the date indicated below.

Date: September 15, 2003 By: Gregory P. Austin
Gregory P. Austin

U.S. Patent Documents

1. U.S. Patent No. 3,668,639 to Henning Friedolf Harmuth, issued June 6, 1972;
2. U.S. Patent No. 3,678,204 to Henning Friedolf Harmuth, issued July 18, 1972;
3. U.S. Patent No. 3,728,632 to Gerald F. Ross, issued April 17, 1973;
4. U.S. Patent No. 4,641,317 to Larry W. Fullerton, issued February 3, 1987;
5. U.S. Patent No. 4,979,186 to Larry W. Fullerton, issued December 18, 1990;
6. U.S. Patent No. 5,146,616 to Raymond Tang and James G. Small, issued September 8, 1992;
7. U.S. Patent No. 5,363,108 to Larry W. Fullerton, issued November 8, 1994;
8. U.S. Patent No. 5,677,927 to Larry W. Fullerton and Ivan A. Cowie, issued October 14, 1997;
9. U.S. Patent No. 5,687,169 to Larry W. Fullerton, issued November 11, 1997;
10. U.S. Patent No. 5,748,891 to Robert Alan Fleming and Cherie Elaine Kushner, issued May 5, 1998;
11. U.S. Patent No. 5,920,278 to G. Leonard Tyler, Roy A. Long and Gregory D. Gibbons, issued July 6, 1999;
12. U.S. Patent No. 6,002,708 to Robert Alan Fleming and Cherie Elaine Kushner, issued December 14, 1999;
13. U.S. Patent No. 6,026,125 to J. Frederick Lerrick, Jr., and Robert J. Fontana, issued February 15, 2000;
14. U.S. Patent No. 6,031,862 to Larry W. Fullerton and Ivan A. Cowie, issued February 29, 2000;
15. U.S. Patent No. 6,178,217 B1 to Anthony Defries and Andrew Denis, issued January 23, 2001;

16. U.S. Patent No. 6,275,544 B1 to Roberto Aiello and Carlton J. Sparrell, issued August 14, 2001;
17. U.S. Patent No. 6,281,784 B1 to Robert E. Redgate, Anthony R. Carson, Michael T. Collins, Kiet Q. Lam, Dustin P. Ketron and Donald L. Toland, issued August 28, 2001;
18. U.S. Patent No. 6,505,032 B1 to John W. McCorkle, Timothy R. Miller and Martin Rofheart, issued January 7, 2003;
19. U.S. Patent No. 6,539,213 B1 to James L. Richards, Larry W. Fullerton and Ivan A. Cowie, issued March 25, 2003;
20. U.S. Patent Application No. 2001/0033610 A1 of William J. Chastain, published October 25, 2001;
21. U.S. Patent Application No. 2002/0075972 A1 of James L. Richards, Vernon R. Brethour and Jack T. Matheney, published June 20, 2002;
22. U.S. Patent No. 2002/0076193 A1 of Bruce D. Melick, David M. Snyder and Leslie D. Baych, published June 20, 2002;

Foreign Patent Documents

23. WO 01/39451 A1 of Multispectral Solutions, Inc., published May 31, 2001;
24. WO 01/93434 A2 of XtremeSpectrum, Inc., published December 6, 2001;
25. WO 02/31986 A2 of XtremeSpectrum, Inc., published April 18, 2002;

Other Documents

26. HENNING F. HARMUTH, "Frequency-Sharing and Spread-Spectrum Transmission with Large Relative Bandwidth", IEEE Transactions on Electromagnetic Compatibility, Vol. EMC-20, No. 1, February 1978, USA;
27. HENNING F. HARMUTH, "Applications of Walsh functions in communications", IEEE Spectrum, November 1969, pgs. 82-91, USA;
28. ROBERT FLEMING, CHERIE KUSHER, "Integrated, Low-Power, Ultra-Wideband Transceivers for Distributed Position Location and Communication",

Semi-Annual Technical Report Contract J-BFI-94-058, Aether Wire & Location, Inc. July 1995, Nicasio, CA, USA;

29. ROBERT FLEMING, CHERIE KUSHER, "Low-Power, Miniature, Distributed Position Location and Communication Devices Using Ultra-Wideband, Nonsinusoidal Communication Technology", Semi-Annual Technical Report Contract J-BFI-94-058, Aether Wire & Location, Inc. July 1995, Nicasio, CA, USA;
30. FERNANDO RAMIREZ-MIRELES, ROBERT A. SCHOLTZ, "N-Orthogonal Time-Shift-Modulated Codes for Impulse Radio", Report from Joint Services Electronics Program Contract F 49620-94-0022, CTMC 1997, IEEE Wireless 98, July 1998, USA;
31. FERNANDO RAMIREZ-MIRALES, "On Performance of Ultra Wideband Signals in Gaussian Noise and Dense Multipath", Paper 99C265, Accepted for Publication in the IEEE Transactions on Vehicular Technology, USC Ultralab, USA;
32. ROBERT A. SCHOLTZ, P. VIJAY KUMAR, CARLOS J. CORRADA-BRAVO, "Signal Design for Ultra-wideband Radio", Department of Electrical Engineering, University of Southern California, Los Angeles, CA, USA;
33. MOE Z. WIN, ZORAN A. KOSTIC, "Impact of Spreading Bandwidth on Rake Reception in Dense Multipath Channels", IEEE Journal on Selected Areas on Communications, Vol. 17, No. 10, pages 1794-1806, October 1999, USA;
34. MOE Z. WIN, GEORGE CHRISIKOS, NELSON R. SOLLENBERGER, "Performance of Rake Reception in Dense multipath Channels: Implications of Spreading Bandwidth and Selection Diversity Order", IEEE Journal on Selected Areas on Communications, Vol. 18, No. 8, pages 1516-1525, August 2000, USA;
35. DI WU, PREDRAG SPASOJEVIC, IVAN SESKAR, "Multipath Beamforming UWB Signal Design Based on Ternary Sequences", 40th Annual Allerton Conference, August 26, 2002, WINLAB, Rutgers University, Camden, New Jersey, USA;
36. MULTISPECTRAL SOLUTIONS, INC., "Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems" September 12, 2000; and
37. ANNA SCAGLIONE, "Differential Direct Sequence Spread Spectrum for Ultra-Wideband Low power Wireless Microsystems", University of New Mexico, Dept. of EECE, Albuquerque, NM, USA.

* * *

The above-listed documents are listed on the accompanying Form PTO/SB/08 (submitted in duplicate).

In accordance with the waiver of the requirement of 37 C.F.R. § 1.98(a)(2)(i) for submitting a copy of each cited U.S. patent and U.S. patent application publication for all U.S. national patent applications filed after June 30, 2003 that appears in the Pre-OG Notice dated July 11, 2003 and entitled "Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications Filed After June 30, 2003", copies of the above-listed U.S. patents and U.S. patent application publications are not enclosed. Copies of the above-listed foreign patent documents and non-patent literature are enclosed.

It is respectfully requested that the above-listed documents be (1) fully considered by the U.S. Patent and Trademark Office in the examination of the above-identified application; and (2) printed on any patent which may issue on this application. It is also respectfully requested that a copy of Form PTO/SB/08, as considered and initialed by the Examiner, be returned to the undersigned with the next communication in accordance with M.P.E.P. § 609.

This Information Disclosure Statement is filed within three months of the filing of the instant application, pursuant to 37 C.F.R. 1.97(b). Therefore, it is believed that no fee is required in connection with this submission. In the event that a fee is required, please charge our Deposit Account No. 50-2298, in the name of Luce, Forward, Hamilton & Scripps LLP.

Respectfully submitted,

9.15.03

Date


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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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of

4

Complete if Known

Application Number	To be assigned
Filing Date	September 15, 2003
First Named Inventor	John SANTHOFF et al.
Art Unit	To be assigned
Examiner Name	To be assigned
Attorney Docket Number	30287-111

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
Number-Kind Code ² (<i>if known</i>)					
		US- 3,668,639	06-06-1972	Harmuth	
		US- 3,678,204	07-18-1972	Harmuth	
		US- 3,728,632	04-17-1973	Ross	
		US- 4,641,317	02-03-1987	Fullerton	
		US- 4,979,186	12-18-1990	Fullerton	
		US- 5,146,616	09-08-1992	Tang et al.	
		US- 5,363,108	11-08-1994	Fullerton	
		US- 5,677,927	10-14-1997	Fullerton et al.	
		US- 5,687,169	11-11-1997	Fullerton	
		US- 5,748,891	05-05-1998	Fleming et al.	
		US- 5,920,278	07-06-1999	Tyler et al.	
		US- 6,002,708	12-14-1999	Fleming et al.	
		US- 6,026,125	02-15-2000	Lerrick, Jr. et al.	
		US- 6,031,862	02-29-2000	Fullerton et al.	
		US- 6,178,217 B1	01-23-2001	Defries et al.	
		US- 6,275,544 B1	08-14-2001	Aiello et al.	
		US- 6,281,784 B1	08-28-2001	Redgate et al.	
		US- 6,505,032 B1	01-07-2003	McCorkle et al.	
		US- 6,539,213 B1	03-25-2003	Richards et al.	

FOREIGN PATENT DOCUMENTS

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Country Code ³ -Number ⁴ -Kind Code ⁵ (<i>if known</i>)						
		WO 01/39451 A1	05-31-2001	Multispectral Solutions, Inc.		
		WO 01/93434 A2	12-06-2001	XtremeSpectrum, Inc.		
		WO 02/31986 A2	04-18-2002	XtremeSpectrum, Inc.		

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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	To be assigned
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				First Named Inventor	John SANTHOFF et al.
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Sheet	2	of	4	Attorney Docket Number	30287-111

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Sheet	3	of	4	Attorney Docket Number	30287-111

NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
		DI WU, PREDRAG SPASOJEVIC, IVAN SESKAR, "Multipath Beamforming UWB Signal Design Based on Ternary Sequences", 40th Annual Allerton Conference, August 26, 2002, WINLAB, Rutgers University, Camden, New Jersey, USA			
		HENNING F. HARMUTH, "Applications of Walsh functions in communications", IEEE Spectrum, November 1969, pgs. 82-91, USA.			
		ROBERT FLEMING, CHERIE KUSHER, "Integrated, Low-Power, Ultra-Wideband Transceivers for Distributed Position Location and Communication", Semi-Annual Technical Report Contract J-BFI-94-058, Aether Wire & Location, Inc. July 1995, Nicasio, CA, USA.			
		ROBERT FLEMING, CHERIE KUSHER, "Low-Power, Miniature, Distributed Position Location and Communication Devices Using Ultra-Wideband, Nonsinusoidal Communication Technology", Semi-Annual Technical Report Contract J-BFI-94-058, Aether Wire & Location, Inc. July 1995, Nicasio, CA, USA.			
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		ROBERT A. SCHOLTZ, P. VIJAY KUMAR, CARLOS J. CORRADA-BRAVO, "Signal Design for Ultra-wideband Radio", Department of Electrical Engineering, University of Southern California, Los Angeles, CA, USA.			
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		HENNING F. HARMUTH, "Frequency-Sharing and Spread-Spectrum Transmission with Large Relative Bandwidth", IEEE Transactions on Electromagnetic Compatibility, Vol. EMC-20, No. 1, February 1978, USA.			

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